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series of two, the largest eye being common to both series. All these eyes are complete in all their parts (lens, retina, etc.), though differing greatly in size, development of optic nerve and degree of external abstriction. All are internally completely occluded except the least developed, which still connects by a lumen with its "parent" eye. The growth is orderly in that it secures (a) the same axial orientation, (b) the same polar orientation, (c) freedom from mutual interruption of vision, (d) nearly maximum compactness. No other possible arrangement secures all these. The mass of tissue in the group is greater than in the normal eye. The case is unique in the literature. The possibility that it represents not proliferation but unequal development of the fragments of a broken-up *anlage* is admitted, but rejected as a probability. If a true case of repetitive proliferation of such specialized structures as these eyes, then near analogies are lacking.

The following exhibits were presented:

Inheritance of Color in the Common Clover Butterfly (Colias philodice): (a) 125 Descendants (F_1 and F_2) of a White Female. (b) Offspring of an Aberrant Female of the Spring Brood, resembling the Arctic Species (*Colias nastes*, Boisd.): J. H. GEROULD, Dartmouth College.

Cytological and Other Characteristics of the Diverse Races of Paramecium: H. S. JENNINGS and G. T. HARGITT, Johns Hopkins University.

Specimens of the 1,500th Generation of Paramecium, attained without Artificial Stimulation or Conjugation: L. L. WOODRUFF, Yale University.

HERBERT W. RAND,
Secretary

HARVARD UNIVERSITY

THE ASSOCIATION OF OFFICIAL SEED ANALYSTS

THE second annual meeting of the Association of Official Seed Analysts was held in Boston, December 28-29, 1909, in connection with the meeting of the American Association for the Advancement of Science.

Agricultural colleges, experiment stations and state departments of agriculture in twelve states and the Canadian and the United States departments of agriculture were represented.

Three papers were presented as follows:

"The Effect of Alternating Temperature on the Germination of Seeds," by W. L. Goss, U. S. Department of Agriculture.

"Importance of Uniform Methods of Seed Testing," by A. D. Selby, Ohio Agricultural Experiment Station.

"The Sale of Adulterated Farm Seeds in the United States," by E. Brown, U. S. Department of Agriculture.

The greater part of the time of the meeting was devoted to consideration of the reports of the committees on methods of seed testing and on legislation. The report on methods of seed testing for purity was adopted as official by the association and that on germination as provisional. The report on state legislation was adopted and the secretary was instructed to prepare both reports for publication.

E. BROWN,
Secretary

SOCIETIES AND ACADEMIES

THE THIRD ANNUAL MEETING OF THE ILLINOIS STATE ACADEMY OF SCIENCE

IN attendance, number and character of papers presented, and in the general spirit of enthusiasm and interest, the meeting at Urbana, February 18 and 19, is regarded with great satisfaction by those who had the good fortune to be present.

More than one hundred new members were elected, so that now the academy, while but three years old, has something more than four hundred names enrolled on its list—a fact which speaks well both for the enthusiasm and the spirit of helpfulness of Illinois men of science, and which repudiates the idea that men of science are recluses.

About one hundred and fifty people were present at the various meetings.

The program was as follows:

"Dr. A. W. French," In Memoriam, A. R. Crook.

"A Needed Piece of Work in the Interest of our Young Investigators in Biology," T. W. Galloway.

"The Vegetational History of a Blowout," H. A. Gleason. (Lantern.)

"Recent Habitat Changes in the Illinois River," Chas. C. Adams. (Lantern.)

"Forest Successions on Isle Royale," Wm. S. Cooper. (Lantern.)

"An Ecological Study of the Fish of a Small Stream," Thomas L. Hankinson.

Address of welcome by the president of the University of Illinois.

Presidential address—"Relations of the Illinois Academy of Science to the State," Stephen A. Forbes.

"Informal Account of my Recent Oriental Trip,"
T. C. Chamberlin.

Reception given by the Illinois Chapter of
Sigma Xi.

Symposium—

(A) "The Relation of Pure and Applied Science to the Progress of Knowledge and to Practical Affairs":

In Biology, Cornelius Betten, Lake Forest College.

In Chemistry, Julius Stieglitz, University of Chicago.

In Physics, John F. Hayford, Northwestern University.

(B) "The Relation of Pure and Applied Science to Secondary Education," C. G. Hopkins, University of Illinois, and Worrallo Whitney, Bowen High School, Chicago.

"The Passing of our Game Birds," Isaac E. Hess.

"Further Studies on the Influence of Copious Water-drinking with Meals," P. B. Hawk.

"Biology and other Sciences as applied by a Breeder," Q. I. Simpson.

"Report on the Ecology of the Skokie Marsh Area near Chicago, with special reference to its Mollusca," Frank C. Baker. (Lantern.)

"Ecological Succession of Fish and its bearing on Fish Culture," V. E. Shelford. (Lantern.)

"Forest Associations of Northwestern Illinois," H. S. Pepoon.

"Relic Dunes," Frank C. Gates. (Lantern.)

"On the Relation of the Jeffersonville Beds of Indiana to the Grand Tower (Onondaga) Limestone of Illinois," T. E. Savage.

"Observations on the Earthquake in the Upper Mississippi Valley, May 26, 1909," Johann August Udden.

The officers for the ensuing year are:

President—John M. Coulter, University of Chicago.

Vice-president—R. O. Graham, Illinois Wesleyan University.

Secretary—A. R. Crook, State Natural History Museum.

Treasurer—J. C. Hessler, James Millikin University.

Third Member Publication Committee—H. H. Stock, University of Illinois.

Membership Committee—Fred L. Charles, University of Illinois; Thomas L. Hankinson, Eastern Illinois State Normal; V. E. Shelford, University of Chicago; W. E. Tower, Englewood High School; Isabel Seymour Smith, Illinois College.

Committee on Ecological Survey—Stephen A. Forbes, V. E. Shelford, H. A. Gleason, E. N. Transeau, Frank C. Baker, Charles C. Adams.

Committee on Deep Drilling—J. A. Udden, U. S. Grant, Frank DeWolf.

Committee on Assistance of the Academy to High Schools in Science Teaching—C. J. Hopkins, John F. Hayford, John G. Coulter, Worrallo Whitney, W. S. Strode.

Committee to Influence Legislation in favor of increased Protection for Game Birds—Stephen A. Forbes, John M. Coulter, A. R. Crook, J. C. Hessler.

Committee to Influence Legislation to restrict the Collection of Birds and Eggs solely to Accredited Institutions—F. C. Baker, I. E. Hess, F. L. Charles.

Committee to cooperate with existing Agencies for the Advancement of Nature-study in Elementary Schools—Fred L. Charles, Ira Meyers and Ruth Marshall.

A. R. CROOK,
Secretary

SPRINGFIELD

THE AMERICAN MATHEMATICAL SOCIETY

THE one hundred and forty-seventh regular meeting of the society was held at Columbia University on Saturday, February 26, 1910, twenty-eight members being in attendance. Ex-president W. F. Osgood occupied the chair at the morning session, Vice-president J. I. Hutchinson at the afternoon session. The council announced the election of the following persons to membership in the society: Mr. E. S. Allen, Berkshire School, Sheffield, Mass.; Mr. B. A. Bernstein, University of California; Mr. G. W. Evans, Charlestown High School, Boston, Mass.; Mr. C. E. Flanigan, Wheeling, W. Va.; Mr. C. E. Githins, Wheeling, W. Va.; Mr. J. S. Mikes, University of Minnesota; Professor G. P. Paine, University of Minnesota; Mr. W. L. Putnam, Boston, Mass.; Mr. V. M. Spunar, Pittsburg, Pa. Nine applications for membership were received. The total membership of the society is now 623.

Committees were appointed to arrange for the summer meeting and to report on the matter of the publication of the Princeton Colloquium Lectures.

The Annual Register for 1910 has recently been issued, and copies can be obtained from the secretary. The catalogue of the library, which is published separately, includes over 3,000 volumes.

The following papers were read at the February meeting:

G. D. Birkhoff: "A simplified treatment of the regular singular point."

G. D. Birkhoff: "Some oscillation and comparison theorems."

P. F. Smith: "On osculating bands of surface-element loci."

Eduard Study: "Die natürlichen Gleichungen der analytischen Curven im euklidischen Raume."

G. A. Miller: "Addition to Sylow's theorem."

Peter Field: "On the circuits of a plane curve."

C. L. Bouton: "Examples of transcendental one-to-one transformations."

Jacob Westlund: "On the fundamental number of the algebraic number field $k(\sqrt{m})$."

L. P. Eisenhart: "Surfaces with isothermal representation of their lines of curvature and their transformations (second paper)."

Edward Kasner: "Isothermal nets."

Arthur Ranum: "On the principle of duality in spherical geometry."

O. E. Glenn: "On multiple factors of ternary and quaternary forms: applications to resolution of rational fractions."

The San Francisco Section of the society met at Stanford University on February 26. The Chicago Section meets at the University of Chicago on Friday and Saturday, April 8-9. The next regular meeting of the society will be held at Columbia University on Saturday, April 30.

F. N. COLE,
Secretary

THE BIOLOGICAL SOCIETY OF WASHINGTON

THE 466th regular meeting of the society was held on February 12, 1910, in the main lecture hall of George Washington University, with Vice-president E. W. Nelson in the chair and a large attendance of members.

Under the heading "Brief Notes," Dr. Barton W. Evermann told of recent experiments in feeding fur-seals in captivity made by Mr. Judson Thurber, boatswain of the Revenue Cutter *Bear*. Two starving seal pups were captured on the Pribilof Islands, October 9, 1909, and delivered to the *Bear* on October 14. They were fed on condensed milk and later on fish, and were successfully conveyed to Seattle, and thence to Washington, where they are now on exhibition at the Fisheries Building, both in excellent health. It is hoped that the practical outcome of this experiment will be the saving of a large number of the young seals on the Pribilofs that are usually lost because of the destruction of the mothers through pelagic sealing.

The following communications were presented:

On Alaskan and Far Northern Mosquitoes: L. O. HOWARD.

Dr. Howard spoke briefly on Alaskan and other far-northern mosquitoes, quoting from the published accounts of arctic explorers and from letters received from travelers in Alaska and other sub-polar and polar regions. It appears that in the short arctic summer mosquitoes are excessively numerous and bloodthirsty, although the number of species involved is apparently very small. Most of the species from such regions in the collection of the National Museum, on the authority of Mr. F. Knab, belong to the genus *Aedes*, a group which winter in the egg state and produce a single generation upon the melting of the snows. The development of the larvæ is rapid and almost simultaneous, resulting in a veritable explosion of adult mosquitoes.

A Collecting Trip to Alaska (illustrated by lantern slides): A. S. HITCHCOCK.

During the summer of 1909, Professor Hitchcock, systematic agrostologist, U. S. Department of Agriculture, made a trip through interior Alaska for the purpose of studying and collecting the grasses of this region, which is comparatively little known botanically. Starting from Seattle, June 15, he visited Juneau, Sitka and Cordova, from which latter point an excursion was made up the Copper River on the new railroad to Miles Glacier. Returning to Juneau, he went to Skagway and over the White Pass to White Horse, where he was joined by Mr. R. S. Kellogg, of the Forest Service. Besides short stops at intermediate points, he visited Dawson, Rampart, Hot Springs, Fairbanks, Fort Gibbon, St. Michael and Nome, returning to Seattle direct.

Alaska consists of several well-marked regions. The coast region lies between the coast and the extension of the Cascade range of mountains, which becomes the Alaska Range. This high range includes the high peaks, Mt. St. Elias and Mt. McKinley. The climate of this region, extending from Ketchikan in southeastern Alaska to Cook Inlet, is similar to that of the Puget Sound region. It is characterized by great rainfall (111 inches at Sitka; as much as 60 feet of snow in winter at Valdez), equable temperature (it is no colder in winter at Sitka than at Washington), and the prevalence of cloudy and foggy days. The Yukon Basin, which includes a large part of the interior, has, on the contrary, a continental cli-

mate. The winters are very cold, while the temperature in summer may be uncomfortably warm, not infrequently above 90° F. in the shade. The rainfall is small (10 to 14 inches) and the weather is normally clear and pleasant. The Yukon Basin is separated from the Arctic Slope by a low range of mountains, the continuation of the Great Continental Divide. The greater portion of Alaska is timbered, the southeastern portion quite densely so, the timbered area including all except the Alaska Peninsula and the Aleutian Islands, the deltas of the Yukon and Kuskokwim rivers, most of Seward Peninsula, and the Arctic Slope. The timber line is usually between 2,000 and 3,000 feet altitude. Except along the rivers, the forests of interior Alaska are sparse and scattered, the trees being rarely over one foot in diameter. In this region the prevailing species are white and black spruce (*Picea canadensis* and *P. mariana*), aspen (*Populus tremuloides*) and white birch (*Betula alaskana*).

The conditions at Hot Springs are of special interest. The hot water is used for a variety of purposes, including the heating of greenhouses and a large hotel. The soil conditions over an area of several acres are so modified that the flora is quite distinct. Many plants were observed here and in no other locality in Alaska, plants which are native much further south. The timber on this area is distinctly larger. Mr. Kellogg noted an aspen eighteen inches in diameter, and the large birch trees were conspicuous.

Special attention was given to the grasses, of which 900 numbers were collected. The grasses of the coast region are well known, this region having been visited by several botanists. Few collectors have penetrated to the interior and our knowledge of the grass flora of this large and interesting region is very meager. The number of species of grasses is small, surprisingly so if we exclude the recent immigrants. Nevertheless, the grasses form a very important part of the flora. The dominant genus is *Calamagrostis*, of which there are several species. *Arctagrostis arundinacea* and species of *Calamagrostis*, especially *C. canadensis*, form the bulk of the grass flora, and may cover vast areas in the more or less open spruce forest.

In spite of the low rainfall and the comparatively dry summers, the soil is usually cold and moist in the valleys and often on the lower mountain slopes. This is due to the poor drainage. The soil is permanently frozen for several

yards below the surface, a thin surface layer thawing out each summer.

The tundra region of Nome is distinctly different from the interior and from the southern coast. The lack of trees and the more severe climate modify the flora. The tundra itself, marshy land with ponds and lakes interspersed, contains few grasses, the grass-like plants being mostly sedges. The hills and sandy or gravelly knolls show, however, a greater variety of grasses than the interior valleys. The flora of Nome is scarcely arctic, though many arctic species are found here. The true arctic flora is found on the Arctic Slope and extends down along the coast to the north shore of Seward Peninsula.

D. E. LANTZ,
Recording Secretary

THE CHEMICAL SOCIETY OF WASHINGTON

THE 196th meeting was held in the lecture hall of the public library on February 10, 1910. President Failyer presided, the attendance being 79. The following committee was appointed to solicit subscriptions for the George Washington Memorial building: F. P. Dewey, W. F. Hillebrand, E. T. Allen, W. N. Berg, F. K. Cameron, V. K. Chesnut, E. A. Hill, C. S. Hudson, W. B. D. Penniman, C. A. Rouiller, A. Seidell, S. S. Voorhees.

F. P. Dewey read a paper on the "Solubility of Gold in Nitric Acid," in which he showed that contrary to the usually accepted opinion, gold, especially when finely divided, is easily soluble in boiling nitric acid of 1.42 sp. gr. Various yellow solutions containing 100 to 200 mg. of gold per liter were prepared, while one solution carried over 660 mg. of gold per liter.

C. L. Alsberg and O. F. Black presented a paper on the "Detection of the Deterioration of Corn with special Reference to Pellagra." Dr. Alsberg presented the paper and showed that the etiological connection between pellagra and spoiled corn was regarded by several European governments as so probable that stringent grain inspection laws have been passed. Inspection is effective only when done with chemical methods. These methods were discussed on the basis of analytical studies. The conclusion reached was that, while no single method is applicable in all cases, the acidity, determined according to a fixed procedure, is the best single criterion for estimating the degree of deterioration.

J. A. LE CLERC,
Secretary